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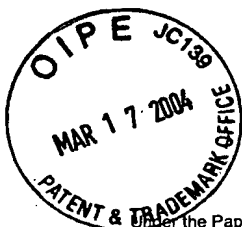
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PTO/SB/21 (08-03)  
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|   |                      |                        |             |
|---|----------------------|------------------------|-------------|
| <b>TRANSMITTAL FORM</b><br><br>(to be used for all correspondence after initial filing) | Application Number   | 10/708,505             |             |
|   | Filing Date          | 03/09/2004             |             |
|   | First Named Inventor | Chun-Yao Chen          |             |
|   | Art Unit             |                        |             |
|   | Examiner Name        |                        |             |
| Total Number of Pages in This Submission  | 3                    | Attorney Docket Number | OTMP0073USA |

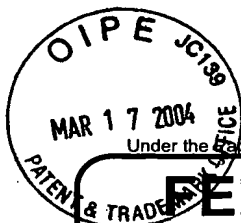
| ENCLOSURES (Check all that apply)  |   |   |
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| <input checked="" type="checkbox"/> Fee Transmittal Form                     | <input type="checkbox"/> Drawing(s)   | <input type="checkbox"/> After Allowance communication to Technology Center (TC)        |
| <input type="checkbox"/> Fee Attached  | <input type="checkbox"/> Licensing-related Papers                                       | <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences     |
| <input type="checkbox"/> Amendment/Reply                                     | <input type="checkbox"/> Petition   | <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) |
| <input type="checkbox"/> After Final   | <input type="checkbox"/> Petition to Convert to a Provisional Application               | <input type="checkbox"/> Proprietary Information  |
| <input type="checkbox"/> Affidavits/declaration(s)                           | <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address | <input type="checkbox"/> Status Letter  |
| <input type="checkbox"/> Extension of Time Request                           | <input type="checkbox"/> Terminal Disclaimer  | <input type="checkbox"/> Other Enclosure(s) (please identify below):                    |
| <input type="checkbox"/> Express Abandonment Request                         | <input type="checkbox"/> Request for Refund   |   |
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| <input checked="" type="checkbox"/> Certified Copy of Priority Document(s)   | Remarks   |   |
| <input type="checkbox"/> Response to Missing Parts/Incomplete Application    | Response to the office action has been sent to the examiner by fax on 12/04/2003        |   |
| <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53 |   |   |

| SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT |                               |
|--|-------------------------------|
| Firm or Individual name                    | Winston Hsu, Reg. No.: 41,526 |
| Signature                                  | <i>Winston Hsu</i>            |
| Date                                       | 3/15/2004                     |

| CERTIFICATE OF TRANSMISSION/MAILING   |  |      |  |
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| I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below. |  |      |  |
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PTO/SB/17 (10-03)

Approved for use through 07/31/2006. OMB 0651-0032

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# FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ ) 0.00

## Complete if Known

|                      |               |
|----------------------|---------------|
| Application Number   | 10/708,505    |
| Filing Date          | 03/09/2004    |
| First Named Inventor | Chun-Yao Chen |
| Examiner Name        |               |
| Art Unit             |               |
| Attorney Docket No.  | OTMP0073USA   |

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## FEE CALCULATION

### 1. BASIC FILING FEE

| Large Entity Fee Code (\$) | Small Entity Fee Code (\$) | Fee Description        | Fee Paid   |
|----------------------------|----------------------------|------------------------|------------|
| 1001 770                   | 2001 385                   | Utility filing fee     |            |
| 1002 340                   | 2002 170                   | Design filing fee      |            |
| 1003 530                   | 2003 265                   | Plant filing fee       |            |
| 1004 770                   | 2004 385                   | Reissue filing fee     |            |
| 1005 160                   | 2005 80                    | Provisional filing fee |            |
| SUBTOTAL (1)               |                            |                        | (\$ ) 0.00 |

### 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

|                    | Extra Claims | Fee from below | Fee Paid |
|--------------------|--------------|----------------|----------|
| Total Claims       | -20** =      | X              |          |
| Independent Claims | -3** =       | X              |          |
| Multiple Dependent |              |                |          |

| Large Entity Fee Code (\$) | Small Entity Fee Code (\$) | Fee Description  |
|----------------------------|----------------------------|--|
| 1202 18                    | 2202 9                     | Claims in excess of 20                                     |
| 1201 86                    | 2201 43                    | Independent claims in excess of 3                          |
| 1203 290                   | 2203 145                   | Multiple dependent claim, if not paid                      |
| 1204 86                    | 2204 43                    | ** Reissue independent claims over original patent         |
| 1205 18                    | 2205 9                     | ** Reissue claims in excess of 20 and over original patent |

SUBTOTAL (2) (\$ ) 0.00

\*\*or number previously paid, if greater; For Reissues, see above

## FEE CALCULATION (continued)

### 3. ADDITIONAL FEES

| Large Entity Fee Code (\$) | Small Entity Fee Code (\$) | Fee Description  | Fee Paid |
|----------------------------|----------------------------|--|----------|
| 1051 130                   | 2051 65                    | Surcharge - late filing fee or oath  |          |
| 1052 50                    | 2052 25                    | Surcharge - late provisional filing fee or cover sheet                     |          |
| 1053 130                   | 1053 130                   | Non-English specification  |          |
| 1812 2,520                 | 1812 2,520                 | For filing a request for ex parte reexamination                            |          |
| 1804 920*                  | 1804 920*                  | Requesting publication of SIR prior to Examiner action                     |          |
| 1805 1,840*                | 1805 1,840*                | Requesting publication of SIR after Examiner action                        |          |
| 1251 110                   | 2251 55                    | Extension for reply within first month                                     |          |
| 1252 420                   | 2252 210                   | Extension for reply within second month                                    |          |
| 1253 950                   | 2253 475                   | Extension for reply within third month                                     |          |
| 1254 1,480                 | 2254 740                   | Extension for reply within fourth month                                    |          |
| 1255 2,010                 | 2255 1,005                 | Extension for reply within fifth month                                     |          |
| 1401 330                   | 2401 165                   | Notice of Appeal   |          |
| 1402 330                   | 2402 165                   | Filing a brief in support of an appeal                                     |          |
| 1403 290                   | 2403 145                   | Request for oral hearing   |          |
| 1451 1,510                 | 1451 1,510                 | Petition to institute a public use proceeding                              |          |
| 1452 110                   | 2452 55                    | Petition to revive - unavoidable   |          |
| 1453 1,330                 | 2453 665                   | Petition to revive - unintentional   |          |
| 1501 1,330                 | 2501 665                   | Utility issue fee (or reissue)   |          |
| 1502 480                   | 2502 240                   | Design issue fee   |          |
| 1503 640                   | 2503 320                   | Plant issue fee  |          |
| 1460 130                   | 1460 130                   | Petitions to the Commissioner  |          |
| 1807 50                    | 1807 50                    | Processing fee under 37 CFR 1.17(q)  |          |
| 1806 180                   | 1806 180                   | Submission of Information Disclosure Stmt                                  |          |
| 8021 40                    | 8021 40                    | Recording each patent assignment per property (times number of properties) |          |
| 1809 770                   | 2809 385                   | Filing a submission after final rejection (37 CFR 1.129(a))                |          |
| 1810 770                   | 2810 385                   | For each additional invention to be examined (37 CFR 1.129(b))             |          |
| 1801 770                   | 2801 385                   | Request for Continued Examination (RCE)                                    |          |
| 1802 900                   | 1802 900                   | Request for expedited examination of a design application                  |          |

Other fee (specify)

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$ ) 0.00

## SUBMITTED BY

(Complete if applicable)

|                   |                    |                                   |           |           |              |
|-------------------|--------------------|-----------------------------------|-----------|-----------|--------------|
| Name (Print/Type) | Winston Hsu        | Registration No. (Attorney/Agent) | 41,526    | Telephone | 886289237350 |
| Signature         | <i>Winston Hsu</i> | Date                              | 3/15/2004 |           |              |

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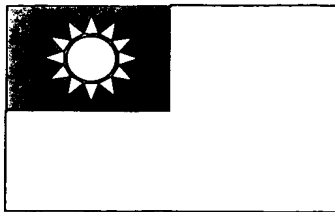
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## DECLARATION — Supplemental Priority Data Sheet

Additional foreign applications:

| Prior Foreign Application<br>Number(s) | Country      | Foreign Filing Date<br>(MM/DD/YYYY) | Priority<br>Not Claimed  | Certified Copy Attached?            |                          |
|--|--------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|
|  |              |                                     |                          | YES                                 | NO                       |
| 0922042093                             | Taiwan R.O.C | 03/12/2003                          | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|  |              |                                     | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
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|  |              |                                     | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
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|  |              |                                     | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |

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## 中華民國經濟部智慧財產局

INTELLECTUAL PROPERTY OFFICE  
MINISTRY OF ECONOMIC AFFAIRS  
REPUBLIC OF CHINA

茲證明所附文件，係本局存檔中原申請案的副本，正確無訛，  
其申請資料如下：

This is to certify that annexed is a true copy from the records of this  
office of the application as originally filed which is identified hereunder:

申請日：西元 2003 年 03 月 12 日  
Application Date

申請案號：092204093  
Application No.

申請人：中強光電股份有限公司  
Applicant(s)

局長  
Director General

蔡練生

發文日期：西元 2004 年 1 月 12 日  
Issue Date

發文字號：09320039440  
Serial No.

|                  |       |
|------------------|-------|
| 申請日期：MAR 12 2003 | IPC分類 |
| 申請案號：            |       |

(以上各欄由本局填註)

## 新型專利說明書

|                    |                      |  |
|--------------------|----------------------|--|
| 一、<br>新型名稱         | 中文                   | 投影顯示裝置   |
|                    | 英文                   | Projection display device  |
| 二、<br>創作人<br>(共2人) | 姓名<br>(中文)           | 1. 陳俊堯<br>2. 曾湧泉   |
|                    | 姓名<br>(英文)           | 1. Chen Chun-Yao<br>2. Tseng Yung Chuan  |
|                    | 國籍<br>(中英文)          | 1. 中華民國 TW 2. 中華民國 TW  |
|                    | 住居所<br>(中文)          | 1. 新竹科學工業園區新竹市力行路11號<br>2. 新竹科學工業園區新竹市力行路11號   |
|                    | 住居所<br>(英文)          | 1. No 11, Li Hsing Rd, Science-Based Industrial Park, Hsinchu, R.O.C.<br>2. No 11, Li Hsing Rd, Science-Based Industrial Park, Hsinchu, R.O.C. |
| 三、<br>申請人<br>(共1人) | 名稱或<br>姓名<br>(中文)    | 1. 中強光電股份有限公司  |
|                    | 名稱或<br>姓名<br>(英文)    | 1. Coretronic Corporation  |
|                    | 國籍<br>(中英文)          | 1. 中華民國  |
|                    | 住居所<br>(營業所)<br>(中文) | 1. 新竹科學工業園區新竹市力行路11號 (本地址與前向貴局申請者相同)   |
|                    | 住居所<br>(營業所)<br>(英文) | 1. No 11, Li Hsing Rd, Science-Based Industrial Park, Hsinchu, Taiwan, R.O.C.  |
|                    | 代表人<br>(中文)          | 1. 張威儀   |
|                    | 代表人<br>(英文)          | 1. Wade Chang  |

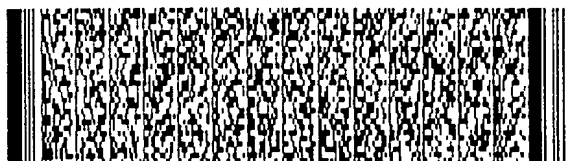


四、中文創作摘要 (創作名稱：投影顯示裝置)

一種投影顯示裝置，包括一殼體、以及設於殼體內之一燈泡、一光機模組及一燈泡散熱裝置，其中該燈泡散熱裝置包括一風扇、一凹室及一燈源罩，其中風扇係設置於一燈泡底部，該凹室則開設於一殼體上並位於該風扇下方，燈源罩係設於燈泡外側，使燈泡外側與燈源罩間形成一導流空間；藉由風扇抽吸顯示裝置下方熱負荷低之空氣，進入導流空間內冷卻燈泡，以增進投影顯示裝置之散熱效果。

陸、英文創作摘要 (創作名稱：Projection display device)

A projection display device comprises a casing, and a lamp for providing illumination lights, an optical engine connected to the lamp for projecting an image into a screen, and a cooling apparatus for the lamp. The cooling apparatus includes a fan installed on the bottom of the lamp, a recess below the fan, and a lamp shade outside the lamp. Between the lamp and lamp shade is formed a space for guiding the air flow along the surface of the lamp. Using the fan for inhaling the lower thermal load air into the



四、中文創作摘要 (創作名稱：投影顯示裝置)

陸、英文創作摘要 (創作名稱：Projection display device)

space to cool the lamp can enhance the cooling efficiency.





四、中文創作摘要 (創作名稱：投影顯示裝置)

伍、(一)、本案代表圖為：第3圖

(二)、本案代表圖之元件代表符號簡單說明：

|     |        |     |      |
|-----|--------|-----|------|
| 2 0 | 投影顯示裝置 | 2 1 | 殼體   |
| 2 2 | 燈泡     | 2 3 | 光機模組 |
| 3 0 | 燈泡散熱裝置 | 3 1 | 風扇   |
| 3 2 | 凹室     | 3 3 | 燈源罩  |
| 3 4 | 導流空間   | 3 5 | 導流板  |

陸、英文創作摘要 (創作名稱：Projection display device)



一、本案已向

國家(地區)申請專利

申請日期

案號

主張專利法第一百零五條準用  
第二十四條第一項優先權

二、☐主張專利法第一百零五條準用第二十五條之一第一項優先權：

申請案號：

日期：

三、主張本案係符合專利法第九十八條第一項☐第一款但書或☐第二款但書規定之期間

日期：



## 五、創作說明 (1)

### 【 新 型 所 屬 之 技 術 領 域 】

本創作係有關投影顯示裝置，尤其係指一種可增進散熱效果之投影顯示裝置。

### 【 先 前 技 術 】

燈泡係提供投影裝置所需之光通量，而為了因應投影裝置應用於視訊簡報及家庭電影院等高亮度之場合，一般係採用高消耗功率之燈泡，但此卻造成燈泡產生大量熱能，而使得燈泡易於損壞並將影響裝置效能。

請參閱第 1 圖所示，習知應用於投影顯示裝置之燈泡散熱裝置，其包括一燈泡 1 1 A 及一設於燈泡 1 1 A 後側之風扇 1 2，藉由風扇 1 2 抽吸裝置內之空氣，使空氣流通過燈泡 1 1 A 側面，進行冷卻燈泡 1 1 A，再由一出風口（圖未示）送出空氣，達到散熱效果；一般投影顯示裝置係採用單一通道設計，空氣先冷卻較低溫之光學元件，此將造成空氣流之密度不同而產生空氣下冷上熱現象，再利用後側設之風扇 1 2 冷卻燈泡 1 1 A，此時風扇 1 2 上部將抽吸熱空氣，下部將抽吸冷空氣，由於熱空氣本身熱負荷高，故無法有效帶走燈泡上部熱能，達到散熱。

另外，請參閱第 2 圖所示，係習知另一投影顯示裝置，其殼體 1 3 底面 1 3 1 與桌面 1 4 具有一間隙，並於殼體 1 3 底部開設通風口 1 3 2，藉由通風口 1 3 2 之設置以抽吸裝置外部之冷空氣來冷卻燈泡 1 1 B，而增進散熱效率；由於環境中之灰塵及雜質，易附著於桌



## 五、創作說明 (2)

面，直接抽吸接近桌面之外部冷空氣，必將大量之灰塵吸入裝置內，而致影響投影裝置內部之元件效能，因此，利用底部抽吸外部冷空氣之方式，尚需增設防塵結構過濾空氣，才可確保裝置效能。

### 【新 型 內 容】

本創作之一目的，係提供一種投影顯示裝置，藉由將風扇設置於燈泡底部，以抽吸熱負荷低之空氣來冷卻燈泡，而增進散熱效果。

本創作之另一目的，係提供一種投影顯示裝置，藉由於風扇下方開設一凹室，以增加進風量。

本創作之又一目的，係提供一種投影顯示裝置，直接利用裝置內部之潔淨空氣來冷卻燈泡，而不利由於殼體底部開孔抽吸之外部空氣，故可避免抽吸外部空氣時造成灰塵吸入裝置之問題，及不需增設防塵結構來過濾空氣，因而可達到的防塵及簡化散熱裝置。

為達上述目的，本創作之投影顯示裝置包括一殼體、以及設於殼體內之一燈泡、一光機模組及一燈泡散熱裝置，其中該燈泡散熱裝置包括一風扇、一凹室及一燈源罩，風扇係設置於該燈泡之底部，凹室係設於該風扇下方，燈源罩係設於該燈泡外側，使該燈源罩與燈泡間形成一導流空間，該燈源罩相對於該燈泡底部及頂部設有一入風口及一出風口，風扇係位於該入風口處；藉由風扇抽吸顯示裝置下方熱負荷低之空氣，進入導流空間內冷卻燈泡，以增進投影顯示裝置之散熱效果。

### 五、創作說明 (3)

#### 【實施方式】

有關本創作為達到上述目的，所採用之技術手段及其餘功效，茲舉一較佳實施例，並配合圖式加以說明如下：

請參閱第3圖及第4圖所示，係本創作燈泡散熱裝置30應用於一投影顯示裝置20，該投影顯示裝置20包括一殼體21、設於殼體21內之一燈泡22、一光機模組23及一燈泡散熱裝置30；該殼體21之相對側面分設有一進風口211及一出風口212，並於其間形成一潔淨之空氣流；其中該燈泡22係用以供照明，以將該照明光束轉換成影像光束；燈泡散熱裝置30係包括一風扇31、一凹室32及一燈源罩33，該風扇31係設置於該燈泡22底部，該凹室32則開設於殼體21上並位於該風扇31下方，以增加風扇之進風量，該燈源罩33係套設於該燈泡22外側，使燈泡22外側與燈源罩33間形成一導流空間34，該燈源罩33於燈泡22之底部及頂部分別開設有一入風口331及一出風口332，該風扇31係面對入風口331而設，出風口332則設有導流板35以將導流空間34之空氣引導至由該顯示裝置20下方之空氣，進入導流空間34藉由燈泡22底部入風口331設置之風扇31來抽吸投影顯示裝置20下方之空氣，沿著燈泡22外側表面流動，以冷卻燈泡2

#### 五、創作說明 (4)

2，最後空氣由燈泡22上方之出風口332排出。由於空氣具有下冷上熱現象，因此將入風口331設於燈泡22底部（即投影顯示裝置20底部），可抽吸投影顯示裝置20中熱負荷低之冷氣，來冷卻燈泡22，故可具有較佳之散熱效果。另外，利用設置凹室32於風扇31下方，可增加風扇31之進風量，因此亦可增強散熱效果。

另外，本創作用以冷卻燈泡22之低熱負荷空氣，係利用風扇31直接抽吸裝置內底部之潔淨空氣，而不會利用由殼體21底部開孔抽吸之外部空氣，所以不需增設防塵結構過濾空氣，及可避免抽吸外部空氣時造成灰塵吸入裝置之問題，因而可簡化散熱裝置及達到裝置防塵。

以上所述，僅用以方便說明本創作之較佳實施例，本創作之範圍不限於該等較佳實施例，凡依本創作所做的任何變更，於不脫離本創作之精神下，皆屬本創作申請專利範圍。



## 圖式簡單說明

### 【圖式簡要說明】

第 1 圖，係習知燈泡散熱裝置之結構示意圖。

第 2 圖，係習知投影顯示裝置之側剖面圖。

第 3 圖，係本創作投影顯示裝置之側剖面圖。

第 4 圖，係本創作燈泡散熱裝置之立體圖。

### 【圖號簡要說明】

2 0 投影顯示裝置

2 1 殼體

2 1 1 進風口

2 1 2 出風口

2 2 燈泡

2 3 光機模組

3 0 燈泡散熱裝置

3 1 風扇

3 2 凹室

3 3 燈源罩

3 3 1 入風口

3 3 2 出風口

3 4 導流空間

3 5 導流板



## 六、申請專利範圍

- 1、一種投影顯示裝置，其包括：
  - 一殼體；
  - 一光機模組，係設置於該殼體內，並包括一燈泡；
  - 以及
  - 一燈泡散熱裝置，係設於該殼體內部，且其包括一風扇及一凹室，該風扇係設於該燈泡之底部，該凹室係設於該風扇下方。
- 2、如申請專利範圍第1項所述之投影顯示裝置，其中該燈泡散熱裝置之凹室係開設於該殼體上。
- 3、如申請專利範圍第1項所述之投影顯示裝置，其中該投影顯示裝置更包括一進風口及一出風口，且其設於該殼體相對之側面。
- 4、如申請專利範圍第1項所述之投影顯示裝置，其中該燈泡散熱裝置更包括一燈源罩，係設於該燈泡外側，該燈源罩與該燈泡間形成一導流空間。
- 5、如申請專利範圍第4項所述之投影顯示裝置，該燈源罩相對於該燈泡底部及頂部設有一入風口及一出風口。
- 6、如申請專利範圍第5項所述之投影顯示裝置，其中該風扇係設於該入風口處。
- 7、如申請專利範圍第5項所述之投影顯示裝置，其中該出風口設有導流板。
- 8、一種燈泡散熱裝置，其包括：
  - 一風扇，係設置於該燈泡之底部；以及



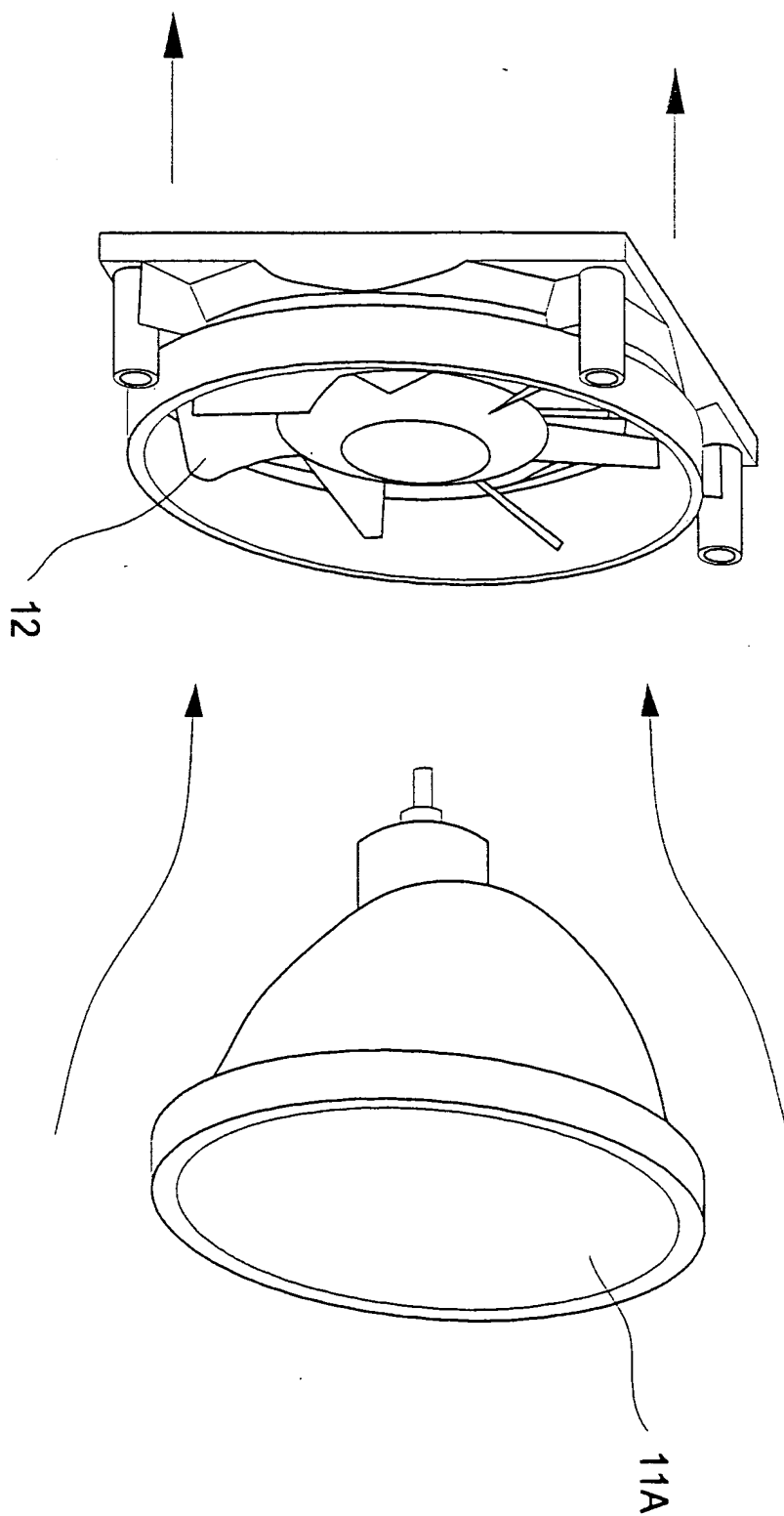


六、申請專利範圍

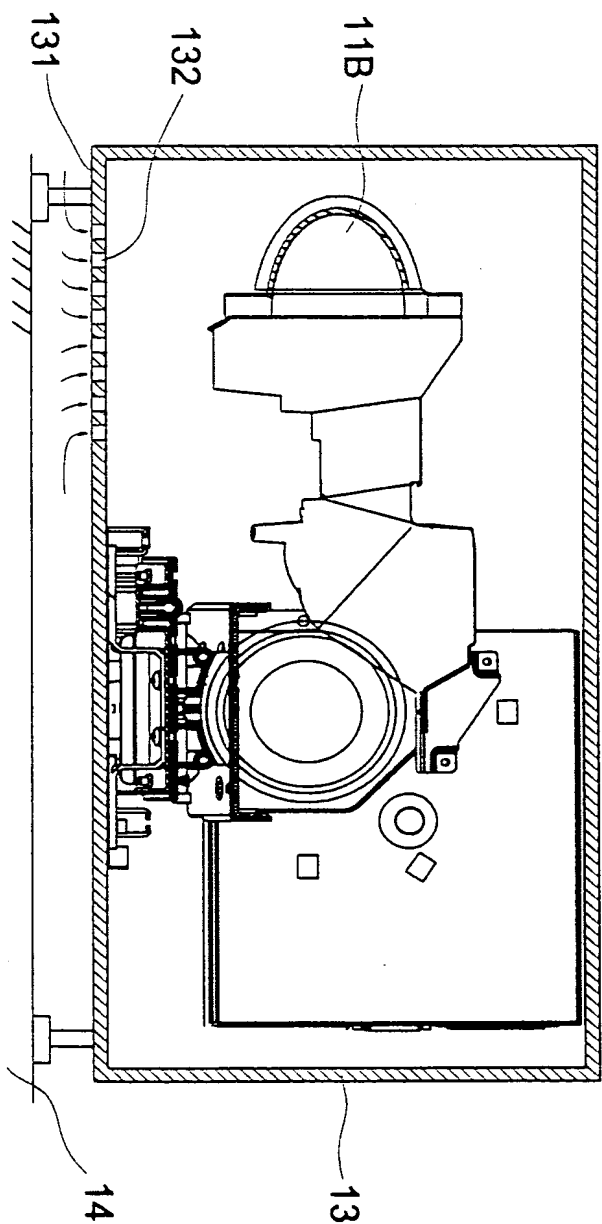
一凹室，係設於該風扇下方。

- 9、如申請專利範圍第8項所述之燈泡散熱裝置，其中更包括一燈源罩，係設於該燈泡外側，該燈源罩與該燈泡間形成一導流空間。
- 10、如申請專利範圍第9項所述之燈泡散熱裝置，該燈源罩相對於該燈泡底部及頂部設有一入風口及一出風口。
- 11、如申請專利範圍第10項所述之燈泡散熱裝置，其中該風扇係設於該入風口處。
- 12、如申請專利範圍第10項所述之燈泡散熱裝置，其中該出風口設有導流板。

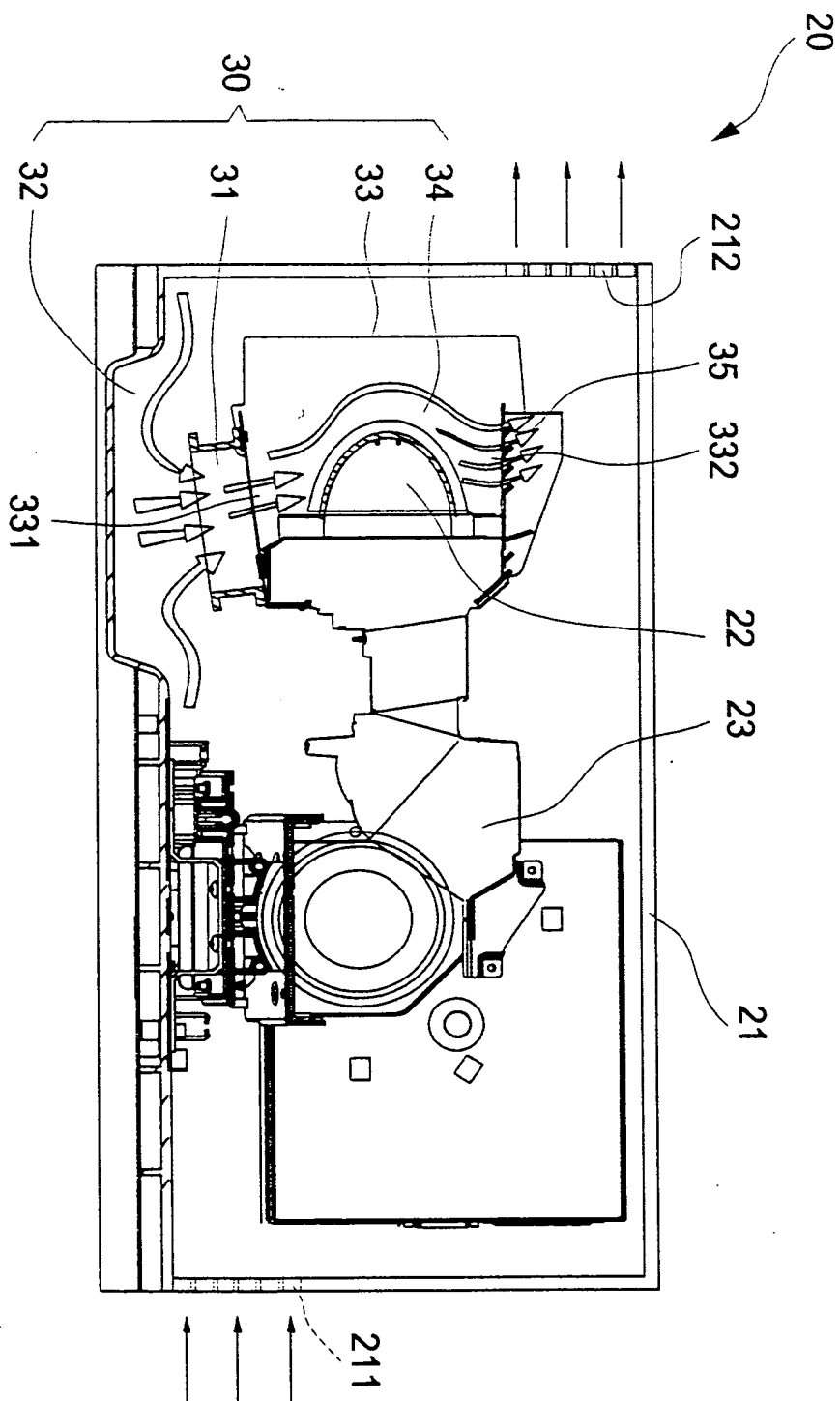




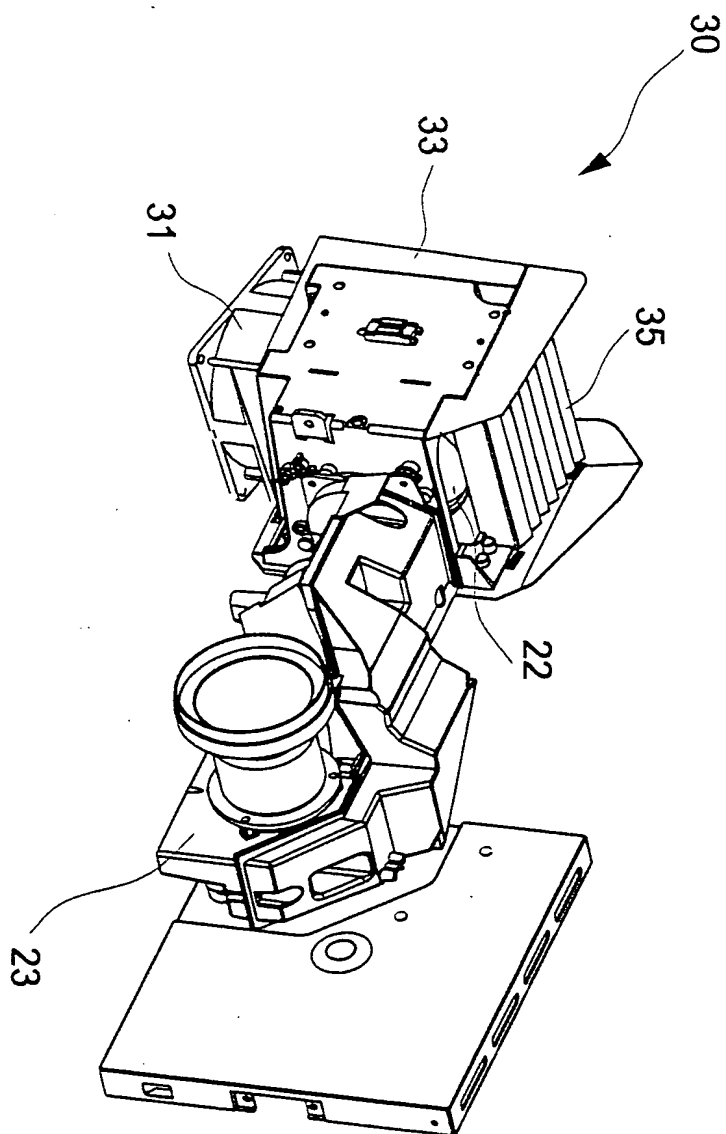
第 1 圖



第 2 圖



第 3 圖

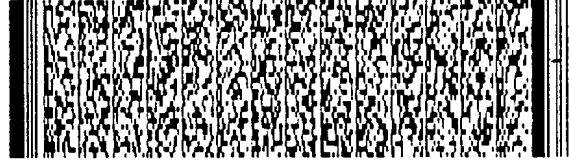


第 4 圖

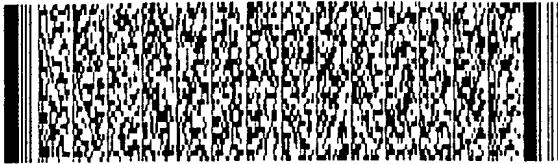
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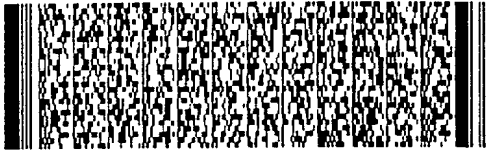
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第 3/12 頁



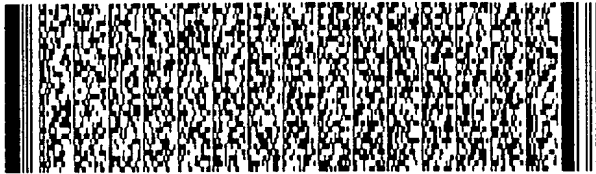
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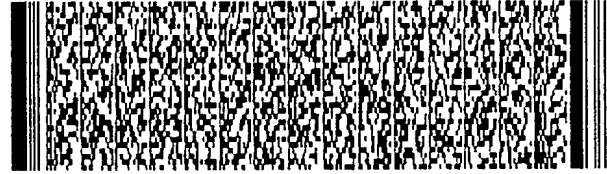
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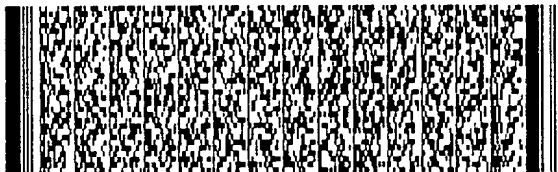
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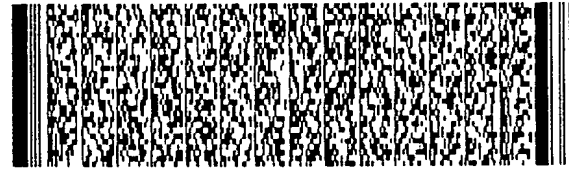
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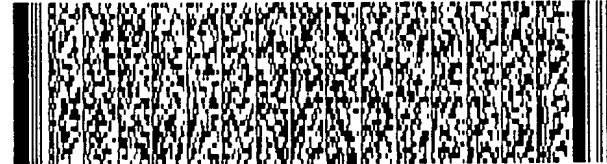
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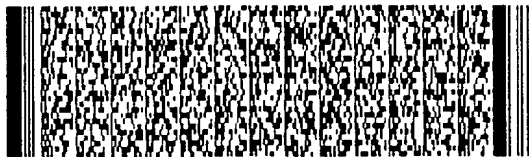
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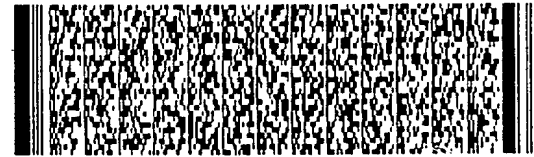
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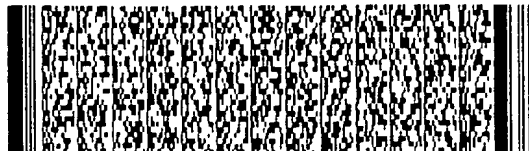
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第 10/12 頁



第 11/12 頁

